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MONTANA WEATHER AND CROP SUMMARY

1960 Growing Season

April - September

October 27, 1960

U. S. DEPARTMENT OF AGRICULTURE  
Agricultural Marketing Service

U. S. DEPARTMENT OF COMMERCE  
Weather Bureau

Temperature

The first two weeks of April were abnormally warm. During the first week, a number of stations observed the warmest for the period of record so early in the season. In contrast to the unusual warmth of the first half, the latter part of the month was very cold. Minimums at the freezing point or colder were general the last week. Overall temperature averages, however, were just a little cooler than long-term means. It was unusually windy during the month, particularly east of the Continental Divide.

The abnormally cool weather of late April continued into the first week of May, and all stations observed freezing or colder on at least one day. Most stations in the Western Division had the coldest morning of the month on the 22nd or 23rd. Average temperatures were below long-term means in all except the east portion, where they averaged a little warmer than usual.

June was unusually windy in the central portion. Temperatures averaged warmer than the long-term means except slightly cooler in the Northeastern Division. Due to strong radiational cooling, several western stations observed freezing temperatures the morning of the 18th.

July was second warmest for that month since records began in 1895. The 113 degree reading at Miles City on the 20th was the hottest observed for any month since 1937. August was quite cool. Freezing temperatures were observed at several western stations the 29th. Clear skies and warm temperatures prevailed throughout September, ideal conditions for all outdoor activity.

Precipitation

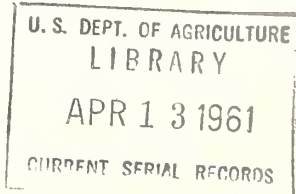
April precipitation averaged above the long-term means in all areas except the two eastern divisions. Heavy snow fell the 22nd - 24th from Helena to Great Falls and west and north over the Continental Divide. Except for a little heavier than usual precipitation west of the Divide and over the Missouri headwaters in May, and locally in the east portion in June, precipitation was generally deficient from May through July. June and July averages were well below seasonal.

August precipitation was well above normal except slightly below in the Southeastern Division. Although August rainfall was more than adequate, it did not compensate for the May - June shortage. September precipitation was deficient, some stations having only a trace, or none at all, for the month. Even with August wetness, it was a very dry growing season, with only a few small local exceptions.

Severe Storms

On April 22, strong winds caused a heavy blow-down of timber over the Swan Range in Flathead County. Also, there was considerable damage to houses, power, and telephone lines in the Lake Blaine area. As might be expected in a dry summer, damage from hail was less than normally expected. Estimated damage was around \$265,000 in June, \$500,000 in July, but over \$1,210,000 during August. The most severe hailstorm was in the Larshan community, Valley County on August 4, where damage to property and crops was in excess of \$500,000.

(Over)



There were two tornadoes in June, one on the 15th which did about \$5,000 damage in Bozeman, and the other the 29th near Highwood which caused little damage. Two tornadoes were also observed in July, one on the 22nd at the Helena Airport which did no damage, and the other on the 29th near Bull Ranch, Silver Bow County, which did some damage in a forested area. Damage from lightning, and other severe storms was minor.

### Crop Development

At onset of the 1960 growing season, crop and grazing prospects were generally bright. Very little winter wheat had winter-killed. Moisture supplies were mostly adequate and weather was favorable for spring work. During mid-April wind together with only light precipitation lessened moisture reserves. Heavy, wet snow late in the month greatly improved the moisture situation along the eastern slopes of the Continental Divide, but hampered calving and lambing operations causing some death losses.

Warmer weather near the middle of May promoted vegetative development and dried fields, accelerating spring planting. Winter wheat, although retarded by a cold period late in the month, developed well and stands were good in nearly all areas. With the exception of some southeast counties, spring grains and hay crops grew well.

Some precipitation in early June benefited the dry southeast district, but moisture was still deficient there. Soil moisture shortages developed in many areas during June, and by July 1 supplies were deficient in virtually all counties. Range grass and spring crops suffered from dryness and native grasses matured earlier than normal limiting the quantity of range feed for summer grazing. Winter wheat developed surprisingly well in view of the dry weather.

Hot, dry weather prevailed in most localities during July and August depleting soil moisture and reducing yields of nearly all dryland crops. The extreme north-east counties were the exception as favorable summer rains contributed to one of the best crops of recent years. Winter wheat turned out much better than expected, reflecting excellent farming practices that made the maximum utilization of subsoil moisture. Harvesting of grain crops started earlier than usual because of forced maturity from heat and dryness. Only minor delays by weather developed during harvesting of hay and other crops. The droughty summer contributed to shortages of range feed, particularly in southern and eastern localities. Some ranchers were forced to cull herds heavily to adjust livestock to available feed.

September also was dry. Some farmers did not seed their intended acreage of winter wheat due to lack of moisture. Planting operations were nearly complete by October 1. Germination of new seedings was retarded, but have, in most areas, developed fairly well in view of dry conditions. Movement of livestock from summer ranges was earlier than normal because range feed became depleted. Fall and winter ranges will supply fair grazing for stock but probably will not furnish adequate feed for extended use.



6-Month Total Precipitation, April 1960 - Sept. 1960 (Inclusive)

Station	Precipitation	6-Month Long-term mean	Station	Precipitation	6-Month Long-term mean
<u>WESTERN DIVISION</u>					
Alberton	7.34		Missoula 2 WNW	5.11	7.37
Big Fork 12 S	10.61		Missoula WBAS	4.85	7.09
Creston	8.30		Ovando 1 SW	5.88	7.72
Darby	5.59	7.48	Ovando 7 WNW	5.57	
Deer Lodge	5.13	7.31	Philipsburg	6.19	9.76
Drummond FAA AP	4.47	*8.27	Pleasant Valley	6.55	7.78
East Anaconda	7.77	8.21	Polebridge	6.72	
Elliston	7.90		Polson Airport	6.98	8.28
Fortine 1 NNE	6.79	9.23	Polson Kerr Dam	5.90	
Hamilton	4.59	6.65	Saint Ignatius	6.68	9.12
Haugan	12.48	8.49	Seeley Lake RS	5.89	
Heron 2 NW	8.83	10.15	Stevensville	3.98	6.46
Hungry Horse Dam	13.38		Sula	9.55	
Kalispell WBAS	7.45	8.65	Summit	13.10	
Kalispell	6.80		Superior	6.52	7.22
Libby RS 1 NE	6.72	6.56	Thompson Falls PH	8.75	7.92
Libby 32 SSE	10.24		Trout Creek 2 W	9.73	8.81
Lindbergh Lake	8.81		West Glacier	11.09	11.77
Lonepine 1 WNW	4.87	5.46			

SOUTHWESTERN DIVISION

Alder	7.17		Jackson	7.18	
Belgrade FAA AP	6.57	*10.51	Lakeview	7.29	
Boulder State School	5.71		Lima	6.70	*7.79
Bozeman Agr. College	8.77	10.98	Norris 3 ENE	8.52	
Bozeman 12 NE	18.96		Norris Madison PH	10.59	11.46
Butte FAA AP	6.23	8.68	Pony	8.66	
Dillon FAA AP	5.02	*7.04	Trident	7.11	
Dillon WMCE	5.84	8.22	Twin Bridges	6.13	
Divide 2 NW	6.33		Virginia City	7.26	9.28
Ennis	5.03	8.29	West Yellowstone	8.38	9.58
Glen 4 N	4.60		Whitehall	7.14	*7.63
Hebgen Dam	9.84	11.14	Wisdom	6.63	

\*Means for short-term period of record 1955.

6-Month Total Precipitation, April 1960 - Sept. 1960 (Inclusive)

Station	Precipitation	6-Month	Station	Precipitation	6-Month
		Long-term mean			Long-term mean

NORTH CENTRAL DIVISION

Babb NE	7.47	13.74	Havre WBO	7.72	9.04
Big Sandy	6.45	9.45	Hays	6.44	
Blackleaf	6.74		Iliad	7.37	
Brady Aznoe	7.16		Joplin 1 N	6.95	
Browning	6.77	10.24	Loma	7.55	
Chester	7.32		Lonesome Lake	6.53	
Chinook	5.27	9.77	Loring 10 N	5.10	
Choteau	4.89	9.42	Malta	5.02	9.43
Cleveland 5 ENE	5.51		Malta 35 S	6.35	
Conrad	6.27	9.57	Phillips 1 S	6.85	
Cut Bank FAA AP	6.86	8.98	Saco (Nelson Res.)	3.89	
Dunkirk 14 NNE	9.13	8.83	Shelby	6.81	
Fairfield	7.20	9.41	Shonkin 7 S	14.91	
Forks 5 NE	4.40		Simpson 4 NNW	5.42	8.47
Fort Assinniboine	5.39	8.85	Sweetgrass	9.14	
Fort Benton		*10.41	Telegraph Creek	4.01	
Gildford	5.94		Tiber Dam	6.38	
Goldbutte 7 N	6.98		Turner	7.19	
Harlem	5.99	9.45	Valier	6.39	10.32

CENTRAL DIVISION

Augusta	6.31	9.92	Lincoln 14 NE	7.86	
Austin 1 W	7.40		Lincoln RS	7.26	
Barber	8.23		Lennepe	8.68	
Canyon Ferry PH	5.65		Martinsdale	8.85	*10.43
Cascade 5 S	7.83	10.60	Melstone	5.08	8.69
Flatwillow 4 ENE	6.90	9.59	Moccasin Exp. Sta.	7.82	*10.83
Gibson Dam	6.57	11.94	Raynesford	7.50	
Grass Range	8.99		Roundup	7.56	8.06
Grass Range 15 NNE	6.63		Roy 8 NE	6.80	
Great Falls WBAS	7.84	9.83	Stanford 2 NE	8.14	11.52
Harlowton	9.03		Sun River 5 SW	7.14	
Helena WBAS	6.02	7.70	Toston 3 SW	5.69	
Holter Dam	6.23	9.36	Townsend	5.37	
Kings Hill	10.72		White Sulphur Springs	8.94	11.41
Lewistown FAA AP	10.25	12.22	Winifred	5.68	9.35

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Station	Precipitation	6-Month Long-term Mean	Station	Precipitation	6-Month Long-term Mean
<u>SOUTH CENTRAL DIVISION</u>					
Ballantine		8.06	Kirby 1 SW	5.14	
Belfry	2.26		Livingston	7.69	8.89
Big Timber	9.64	9.67	Livingston FAA AP	7.01	*9.94
Billings Water Plant	4.68		Mystic Lake	9.76	15.08
Billings WBAS	5.70	8.80	Nye	10.28	
Bridger	4.13		Nye (Mouat Mine)	11.34	
Busby	6.29	8.79	Rapelje 4 S	7.57	9.18
Columbus	4.98	9.55	Red Lodge	7.81	13.08
Crow Agency	4.53	9.47	Wilsall	9.86	
Hardin	4.90		Wilsall 8 ENE	11.23	
Huntley Exp. Sta.	6.04	8.07	Wyola	4.77	*8.89
Hysham 19 SSE	4.77		Yellowstone Park NE	9.84	
Joliet	5.28				
<u>NORTHEASTERN DIVISION</u>					
Bredette	10.27		Nohly 3 WNW	11.57	
Circle 7 N	4.85	9.61	Opheim 10 N	8.19	
Culbertson	7.80	10.53	Opheim 12 SSE	9.68	
Fort Peck	7.60		Poplar	8.90	10.46
Frazer	6.16	10.13	Raymond Border Sta.	11.68	
Glasgow WBAS	5.30	10.07	Redstone	9.63	
Glendive	6.83	10.18	Richey	9.20	
Haxby 18 SW		10.26	Savage	7.06	10.77
Jordan	4.07	8.04	Scobey	8.24	
Lambert	7.91		Sidney	8.96	
Lustre 4 NNW	8.18	9.64	Thoeny	5.90	
Medicine Lake 3 SE	11.58	10.27	Vida	7.25	11.32
Mosby 2 ENE	5.57		Westby	7.96	
			Wolf Point 4 ESE	6.49	
<u>SOUTHEASTERN DIVISION</u>					
Albion	9.01		Mildred	5.62	9.85
Birney 2 SE	4.01		Miles City	4.59	
Boyes	8.40		Miles City FAA AP	4.40	9.34
Broadus	6.14	*10.25	Moorhead	5.17	
Colstrip	7.01	10.60	Plevna	4.85	10.10
Ekalaka	10.11	10.32	Ridgway	9.21	
Forsyth 2 E	4.57		Rock Springs	4.14	
Ingomar 11 NE	3.94		Terry	4.57	
Lame Deer	6.63		Wibaux 2 E	6.71	

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